# Current Practice

## Skin Lesions in Drug Addicts

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In view of the increasing incidence of drug addiction, the skin lesions associated with the injection of narcotic drugs seem worth review. Familiarity with them may help in diagnosis. Some have received passing comment in the literature,[1] but there has been no comprehensive review.

Fifty-four patients attending a treatment centre were examined at least once over a period of 12 months. Fifty-two patients were injecting heroin and methadone or methadone alone. Nine were on methylamphetamine and cocaine in addition. Two had recently stopped heroin and were taking only oral amphetamines. Their ages ranged from 16 to 52, but most were in their early 20s. The length of time they had been on drugs varied from 2 to 23 years, but the average was 3½ years.

### Injection Sites

The favourite injection sites were the antecubital fossae, partly because the veins were easy to inject and partly because the marks could be covered by long sleeves (Fig. 1). Some

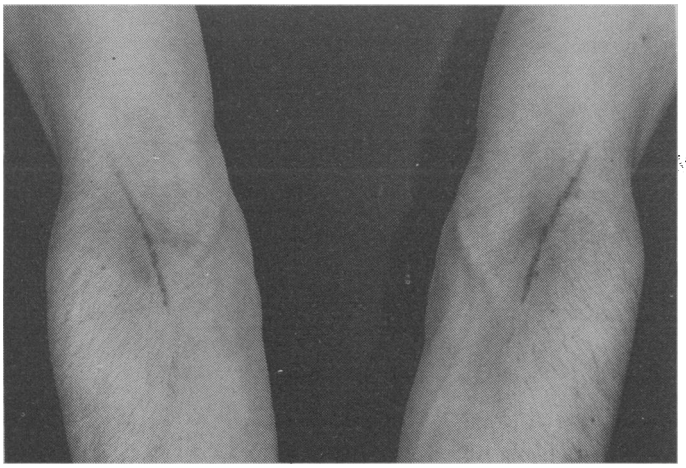

FIG. 1.—Needle tracks in antecubital fossae.

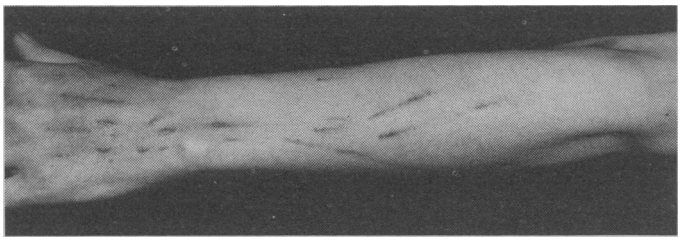

FIG. 2.—Needle tracks on back of forearm.

patients were embarrassed by the scars and a few found it easier to obtain employment when their drug habits were unsuspected. The next most popular sites were the backs of the hands and forearms (Fig. 2); the feet and thighs were used only as a last resort. Taking drugs intravenously ("mainlining") gives far more of a "kick" than do intramuscular or subcutaneous injections ("skin popping"), and nearly always after five or six shots a day the veins become difficult to use. This is often accelerated by a traumatic injection technique. The needle is pushed in up to the hilt, partly to produce an unpleasant sensation and partly to steady the syringe. Amazing ingenuity was used to circumvent the problems of thrombosis, and sometimes veins on the lateral sides of the thumbs or the backs of the fingers were injected. Most addicts managed without a tourniquet, and there was only one girl who was unable to inject herself intravenously and relied on her boy friend for this.

The commonest skin lesion was scarring at the injection sites (see Table). This was present in all addicts. It was

*Relative Frequency of Skin Lesions in the 54 Patients*

| Lesion | No. of Patients | Percentage of Patients |
|---|---|---|
| Scarring | 54 | 100 |
| Hyperpigmentation | 40 | 74 |
| Thromboses | 32 | 59 |
| Itching | 19 | 35 |
| Bruising | 15 | 28 |
| Tattoos | 14 | 26 |
| Multiple excoriations | 9 | 17 |
| Barbiturate ulcers | 7 | 13 |
| Lymphoedema | 4 | 7 |
| Abscesses present at time of examination | 4 | 7 |
| Past history of abscesses | 35 | 65 |
| Urticaria at injection site | 2 | 4 |
| Past history of urticaria | 53 | 98 |
| Keloids | 1 | |
| Drug rash | 1 | |

usually punctate and in a linear distribution over the centre of the vein. The well-reported "tramlines" or parallel punctate scars on either side of the vein were seen in only four patients.

Pronounced hyperpigmentation over the veins at all injection areas was seen in 74% of addicts. It appeared to be postinflammatory in origin and partly determined by the individual's tendency to pigmentation. It did not seem to be related to the length of time drugs had been injected—one patient showed none after eight years and many were deeply pigmented after two years. In one patient hyperpigmentation was still present eight months after he had stopped all injections. In another it had faded completely after 18 months. In New York addicts hyperpigmentation as a result of "soot tattooing" is common.[2] Needles are sterilized by flaming and the carbon deposited on them is injected into the dermis, producing pigmentation. This was rarely seen in these patients, as they were all given disposable needles which were never sterilized, even when used more than once.

Thrombosed veins were palpable in 59% of patients. They varied from small areas in the antecubital fossae to multiple areas wherever a vein had been injected. No patient in this series was seen with an acute thrombophlebitis. Bruising over the veins was seen in only 28% of patients.

Only 7% (four addicts) had abscesses at the time of examination, because they tended to go to hospital casualty departments if they had a painful infection rather than wait for the next addiction clinic. Most were terrified by the dangers of infection and possible septicaemia. Sixty-five per cent. (35 patients) gave a history of abscesses in the past.

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Hussey,[3] in his description of infections in Washington addicts in the 1940s, noted abscesses in 26% of 263 patients. The introduction during the past year of adequate supplies of free disposable injection equipment for the London patients is obviously important in their lower rate of sepsis. Some used 50 syringes a week. Only one of the 54 patients cleaned the skin before injection and used a sterile disposable syringe and needle every time. Most patients dissolved the heroin tablets in methadone, but others used tap-water without boiling it. Thirteen patients had had septicaemia and 16 hepatitis while taking drugs.

## Urticaria

Urticaria all down the arm was seen half an hour after injection in two addicts (Figs. 3 and 4). It was interesting that all except one of the addicts had noticed that if part of the injection went perivenously they developed urticaria at the site, and sometimes down the arm below it, within the next few minutes. One or two who used tourniquets found that if they were slow to release them after injecting they would have weals all down the arm, even though the injection had gone into the vein. Presumably this effect is due to the histamine releasing action of heroin and methadone; the increased pressure allowing the drug to seep out into the dermis.

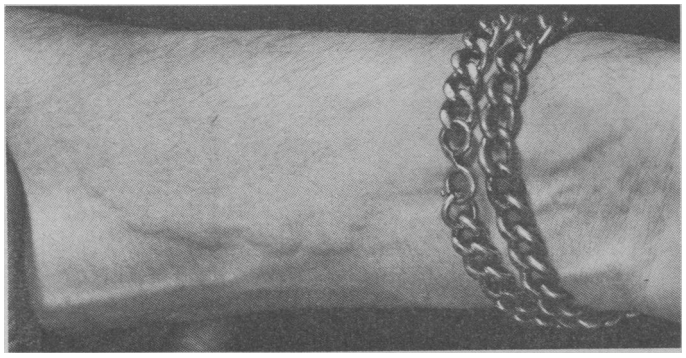

FIG. 3.—Urticaria after injection of heroin.

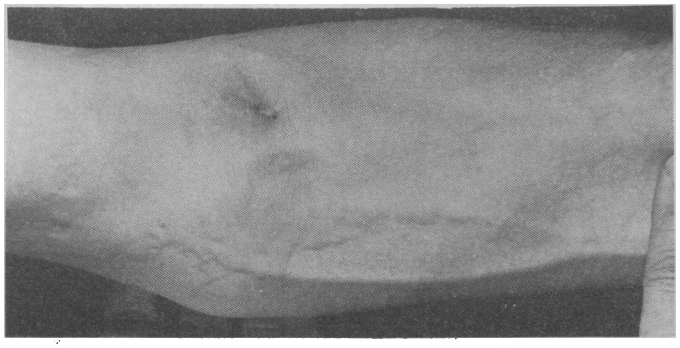

FIG. 4.—Urticaria after injection of heroin.

The urticaria was reproduced experimentally in six patients. A sphygmomanometer cuff was placed on the arm and held at just above diastolic pressure. Heroin and methadone were injected intravenously below it; the cuff was released and the needle withdrawn after two minutes. A flare appeared immediately and weals within two minutes. These became confluent around the injection site and spread down the arm—in one case to the wrist and back of the hand. Itching was intense. In these six patients the extent of the wealing did not appear to be dose dependent. The same reaction was noted whether the drugs were injected separately or together. When methadone was injected alone in two patients weals appeared more quickly—in 30 seconds. In all six patients the eruption had cleared completely within two and a half hours.

Urticaria occurring over the whole body as a drug eruption was seen in only one patient. It flared up after each injection of methadone and settled after two weeks, though the patient continued the drug.

Necrotic ulcerating lesions were seen in those who injected barbiturates intravenously (Fig. 5). Tuinal (amylobarbitone sodium and quinalbarbitone sodium) or Nembutal (pentobarbitone sodium) were usually chosen and the contents dissolved in tap-water. If some of the solution went perivenously, or occasionally even if it did not, an area of erythema, oedema, and induration appeared within an hour or two. Within a few days the lesion ulcerated. One patient developed a haemorrhagic area with a blistering edge within 12 hours which later ulcerated (Fig. 6). Two complained that they developed ulcers at the site of injection two to three weeks later. It was difficult to assess whether or not they were reliable witnesses. The ulcers were painful, with much surrounding erythema. Some of them healed within three weeks; others remained indolent or infected for very much longer. One was seen penetrating to the bone over the lateral malleolus. They eventually healed, leaving punched out atrophic scars with a surrounding border of hyperpigmentation and a network of

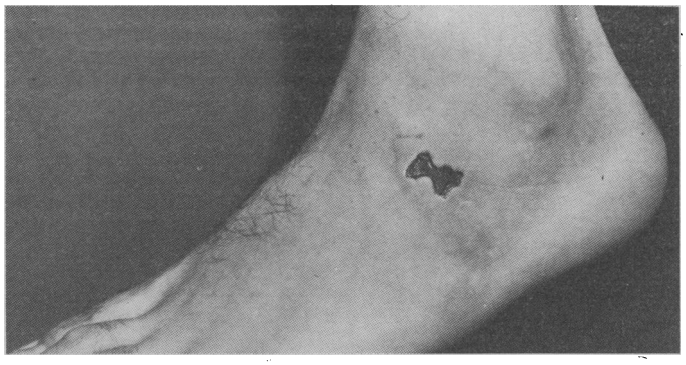

FIG. 5.—Barbiturate ulcer on left foot.

FIG. 6.—Barbiturate ulcers. Lesion at lower left shows central haemorrhagic area with a blistering edge 12 hours after injection.

FIG. 7.—Barbiturate ulcer with lymphoedema.

brown pigmentation on the scar. Tuinal capsules contain starch and Nembutal capsules contain lactose to disperse the drug and to make the powder run. Presumably these substances act as irritants causing the necrosis. They are injected by addicts who become tolerant to their drugs and who find that they potentiate the effect of heroin. Some inject them simply because they cannot sleep and find that they are more effective when taken intravenously.

Four patients were seen with multiple large ulcerated lesions and lymphoedema from capsules (Fig. 7) and three with well-healed scars from previous injections. Presumably the numbers were small partly because the clinic refused to supply barbiturates. Only one patient was seen with an ulcer caused by injecting contaminated black market heroin.[4]

Two patients had patches of telangiectasia at sites where they had injected drugs subcutaneously.

Fourteen patients had tattoos. Ten had had them done before they became addicts and in no case had they been obtained in an attempt to camouflage the injection sites. Without exception they all regretted having had them.

One patient developed clubbing after septicaemia with lung abscesses and another diffuse hair loss (telogen effluvium) after septicaemia. One Caucasian was seen with keloids at all injection sites, one had scabies, and another had human bites. Nine patients had acne, six eczema, and two dandruff. It was not surprising that in this group four patients were seen with scars of previous suicide attempts.

## Histology

Histological specimens were obtained from the injection sites of two addicts who died. One was a young man who had not taken heroin for 18 months and then died from an overdose of drugs intravenously. A specimen of skin and underlying vein from the antecubital fossa showed foreign body granulomas, multinucleated giant cells, macrophages, and histiocytes (Fig. 8). The foreign body granulomas could have been the result of minute particles of glass after using a glass syringe or of particles of substance used to dilute the heroin.

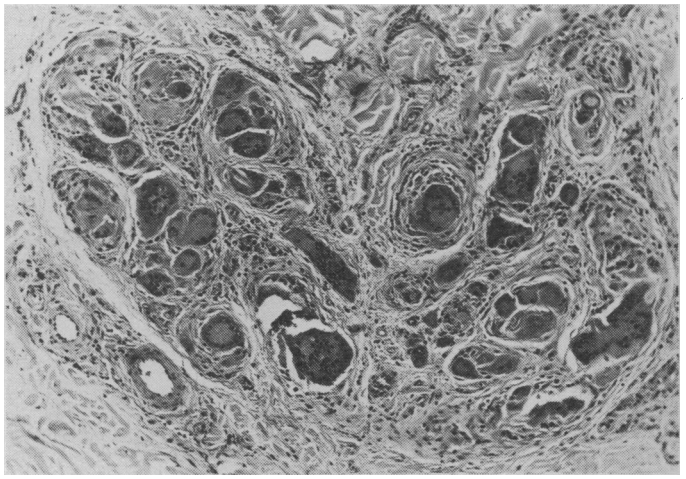

FIG. 8.—Foreign body granuloma at injection site. (× 97.)

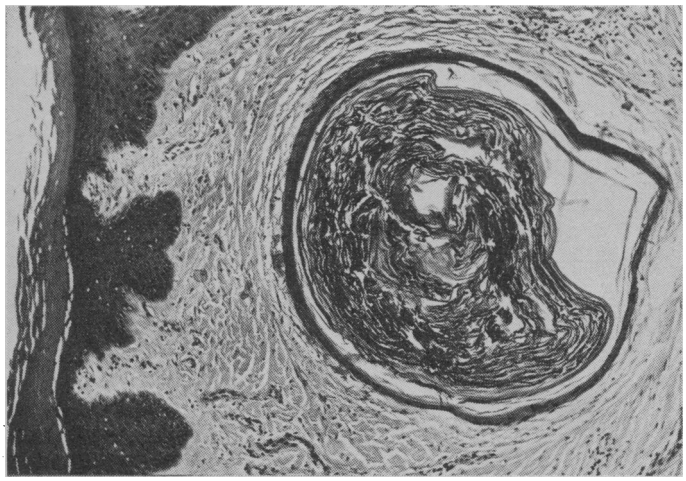

FIG. 10.—Implantation epidermoid cyst in the upper dermis at injection site. (× 85.)

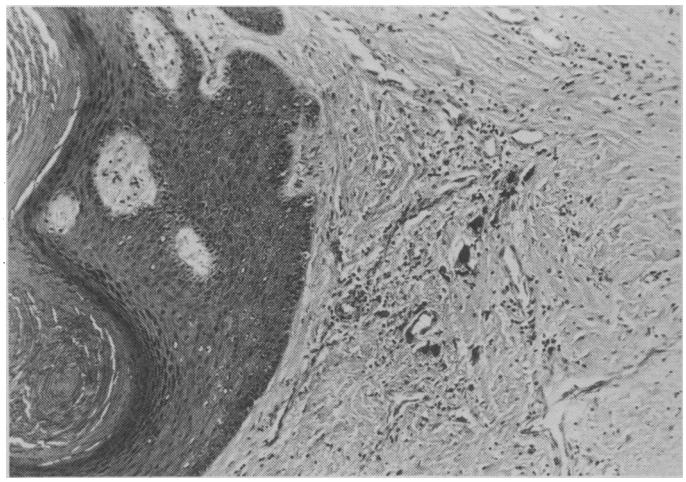

FIG. 9.—Carbon particles in the upper dermis. (× 85.)

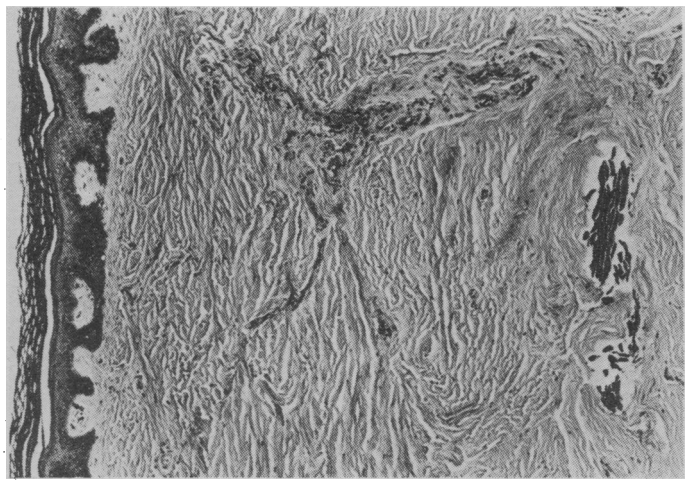

FIG. 11.—Keratin flakes implanted in dermis. (× 55.)

Nineteen patients complained of itching shortly after taking heroin. This usually occurred around the mouth and nose or at the injection site and wore off within minutes. After two or three weeks on the drug it vanished.

Those who took cocaine or methyl amphetamine developed a sensation of objects creeping on or under the skin, so that they had to pick incessantly. As a result they had multiple excoriations and later hyperpigmented scars. Nine patients with this syndrome were seen and they resembled cases of florid dermatitis artefacta. None had true acarophobia.

The other specimens were from a 26-year-old Negro woman who was taking heroin and cocaine and died from fulminating bacterial endocarditis. The dorsum of the forearm was ulcerated and infected, partly as a result of injecting barbiturates. A section showed an intense mixed inflammatory cell infiltrate with one multinucleated giant cell and carbon particles in the upper and lower dermis (Fig. 9). There was also an implantation epidermoid cyst (Fig. 10). The patient had flamed her needles to sterilize them.

A section from another needle track showed dense but

vascular fibrous tissue infiltrated by lymphocytes. Unlike the first case there were no foreign body granulomas.

A section from a healed barbiturate ulcer showed hyalinized fibrous tissue with increased numbers of thin-walled blood vessels and a scanty non-specific chronic inflammatory cell infiltrate extending through the dermis. Flakes of keratin were present in the dermis, having been introduced with the needle from the stratum corneum (Fig. 11).

## Discussion

As might be expected after repeated injections, scarring, hyperpigmentation, thrombosis, and bruising were often seen. Ulceration after injecting "sleepers" seemed to be the most unpleasant complication, and in four cases this was associated with severe lymphoedema. In spite of an almost universal disregard of sterility, abscesses were seen in only four patients. It was interesting that 98% had noted localized urticaria after missing a vein when injecting heroin or methadone. This does not seem to have been reported previously in this group. It was surprising that only one patient had a drug eruption (urticaria after methadone), though many of them took a multiplicity of tranquillizers and sedatives, obtained from various sources, in addition to their hard drugs.

I am grateful to Dr. J. Willis for allowing me to examine patients attending the addiction centre; to Dr. T. Farnan for histology reports and photographs; to Professor D. Teare for the histology specimens; and to Dr. S. Oram for Fig. 2.

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# ANY QUESTIONS?

*We publish below a selection of questions and answers of general interest.*

### Malaria Prophylaxis

**Q.**—*Is malaria prophylaxis advisable for people travelling by cargo ship to ports in Thailand, Malaysia, Sumatra, and the Philippines? If so, what regimen should be followed and what is the most suitable prophylactic?*

**A.**—In most sea-ports in the Far East malaria control has been strictly enforced and has been very effective. Nevertheless in the hinterland of the countries concerned malaria does occur so that those travelling to these regions would be well advised to take a prophylactic. Most people working in these areas take proguanil in doses of 100/200 mg. daily, or chloroquine in doses of 450 mg. base weekly, or pyrimethamine in doses of 25 mg. weekly. American troops in Vietnam have also been taking 300 mg. of chloroquine base, and 45 mg. pyrimethamine weekly, and to some an additional weekly dose of 25 mg. dapsone is being given.

### Diabetes and Conception

**Q.**—*How much does diabetes in a woman (1) lessen her chances of conceiving; (2) increase the risk of fetal mortality?*

**A.**—This is a deceptively simple question. The answer is much more difficult, for lurking in the background are the concepts of prediabetes, impaired glucose tolerance, obesity, and family history of diabetes, so that what constitutes diabetes is no longer as clear as it once seemed to be. The staff of the Mount Sinai Hospital,[1] for instance, call for the adoption of White's classification of diabetes into six categories.

The first approximation to the truth seems to be that uncontrolled diabetics rarely become pregnant, but that when the diabetes is properly controlled fertility is not greatly, if at all, impaired.[2] Similarly, in controlled diabetes the abortion rate ought not to be above the usual one of about 10%. The perinatal mortality rate in the very best hands might be of the order of 15%—the figure for all births in England and Wales for 1966 being about 2·6%.[3] There is a high mortality for the babies of diabetic mothers when there is associated pre-eclampsia and/or hydramnios. These may be seen in as many as 50% and 40% of pregnancies respectively.[4]

All of these figures require qualification. The data on fertility in diabetics is very scanty. Perhaps the main problem lies in the undiagnosed diabetics in the population at large. It is usually recommended that a glucose tolerance curve should be done in cases of infertility when no other obvious cause for the complaint has been found.

In the paper cited[4] abortion rates varied between 8 and 22%. Perinatal mortality may range from about 8% to 40%, depending upon the care that can be given to the patients. There seems no doubt that the better the care the better the results.[5]

Further statistics may be gleaned from the papers cited below. They refer to the U.S.A.,[6] Spain,[7] and Edinburgh.[8]

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# Notes and Comments

**Incontinence after Prostatectomy.**—Mr. E. S. GLEN (Victoria Infirmary, Glasgow) writes: With reference to the answer to this question ("Any Questions?" 2 May, p. 283) the reply given gave prominence to the use of implanted electronic devices. An intra-anal plug electrode and stimulator unit made by Cardiac Recorders Limited produces good results in both recent and long standing incontinence. It is particularly effective when used within the first few weeks but has also been successful more than one year after prostatectomy. Since no surgery is required it should be used before considering implanting electrodes for a condition which is usually temporary.

The original model has been criticized[1] because the electrode tended to slide into the rectum, but the addition of a perineal guard[2] prevents this and maintains better electrode contact. Patients find the modified plug easy to insert and seldom experience discomfort. Most are quickly able to insert and control the apparatus, using it at home and being reviewed at an outpatient clinic. There are no significant side-effects and once confidence and continence have been restored, the apparatus is returned without the need for surgery in contrast to implanted electrodes.

OUR EXPERT replies: The need for surgery is undoubtedly a drawback to the electronic implant and a satisfactory non-operative alternative is highly desirable. In the case of female incontinence an electrode-bearing pessary meets this requirement, but for males the anal-plug electrode is a less successful alternative. At a recent symposium on electronic methods of controlling incontinence a paper reported disappointing results with the anal-plug electrode in long standing postprostatectomy incontinence.[3] Lack of success was attributed partly to instability of electrode contact and partly to failure of the Cardiac Recorder electrode to apply stimulation at the optimum site for influencing urethral closure. Overcoming the former limitation by the guard referred to by Mr. Glen should improve the response. A controlled trial would be desirable to establish the benefit of this treatment during the first few weeks of temporary incontinence.

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